

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

11. (currently amended) Method for ~~[[the]]~~ secure execution of an instruction sequence of a computer application in the form of data, called typed data and comprising an identifier, said method comprising allowing the following steps performed by an interpreter of a computer system, particularly an embedded microchip system, during the execution of a sequence of instructions of predetermined types of said instruction sequence:

identifying an interpreter of a computer system, particularly an embedded microchip system, to identify a type of said typed data;

and to store them storing the type of said typed data in a first series of given locations in a memory of said computer system[[,]]:

wherein the interpreter further performs the following steps:

characterized in that said interpreter generates generating, based on said identifier, additional data called type information elements, associated with each of said typed data[[,]] and based on said identifier;

and stores storing or updating updates said type information elements in a second series of given storage locations, corresponding one to one with the first series of given storage locations in order to specify the type of these typed data[[,]]:

and in that during the execution of a sequence of instructions of predetermined types, said interpreter performs a continuous verification continuously verifying, prior to the execution of each of the predetermined instructions, of the

matching between a type indicated by these instructions and an expected type indicated by said type information elements stored in said second series of storage locations, so that said execution is authorized only when there is match between said types[.]; and

wherein the second series of given storage locations corresponding one-to-one with the first series of given storage locations.

12. (currently amended) Method according to claim 11, ~~characterized in that~~ wherein each of said type information elements is constituted by a string of bits stored in storage locations of said second series that correspond one-to-one with storage locations in said first series in which said associated typed data are stored, and the configuration whereof represents one of said types of typed data.

13. (currently amended) Method according to claim 11, ~~characterized in that,~~ wherein:

- = said instructions being those of an application written in a programming language of typed data and typed object, said typed data are constituted by typed objects[.];
- = ~~in that the~~ said interpreter incorporated in said computer system is a piece of software called virtual machine that manipulates said typed object[.];
- = ~~in that~~ said storage locations in said memory of the computer system being organized into stacks comprising a variable number of levels depending on the instruction executed, each level constituting one of said storage locations, said typed objects are stored in at least a first

elementary stack called a data area and a second elementary stack called a local variable area[[],]; and

- ~~in that~~ said type information elements are distributed into two additional elementary stacks that correspond one-to-one with said first and second elementary stacks, in order to specify the type of said associated objects stored in said data and local variable areas.

14. (currently amended) Method according to claim 11, wherein ~~characterized~~ ~~that~~ when there is no match, the execution of said instruction sequence is interrupted and replaced by the execution of instructions corresponding to pre-programmed security measures.

15. (currently amended) Method according to claim 13, wherein ~~characterized in that~~ said type information elements are associated with additional information elements that determine the size of said storage locations in said stacks storing said typed objects, in order to make variable the size of said stacks, based on said objects to be manipulated.

16. (currently amended) Method according to claim 13, wherein ~~characterized~~ ~~in that~~ said type information elements are associated with additional information elements called flags, in order to mark said objects that are associated with them and to indicate whether they should be saved in said stacks or can be erased.

17. (currently amended) Embedded ~~smart-card~~ microchip system comprising computer data, processing means and storage means for ~~[[the]]~~ secure execution of a ~~n-instruction~~ sequence of instructions of predetermined types of a computer

application in the form of data, called typed data[[,]] and comprising an identifier,  
said embedded system comprising:

- an interpreter interpreting said instructions and identifying allowing,  
 during the execution of said instruction sequence, ~~an interpreter of~~  
~~said embedded system, to identify~~ a type of said typed data and ~~to~~  
~~store~~ storing them in a first series of given storage locations in a  
 memory of said computer system[[,]];

wherein characterized in that said interpreter :

- = generates, based on said identifier, additional data called type  
 information elements, associated with each of said typed data, and  
 stores or updates said type information elements in a second series of  
 given storage locations, ~~corresponding one-to-one with the first series~~  
~~of given storage locations~~ in order to specify the type of these typed  
 data[[,]]; and
- = ~~in that said interpreter~~ comprises verification means for continuously  
 verifying, during the execution of a sequence of instructions, prior to  
 the execution of each of predetermined instructions of said sequence,  
 the matching between a type indicated by the instructions and a type  
 indicated by said type information elements, so as to authorize said  
 execution only when there is a match between said types; and

wherein said second series of given storage locations correspond one-to-one with the  
first series of given storage locations.

18. (currently amended) System according to claim 17, characterized in that  
wherein:

- said first series of given locations in said memory of the embedded microchip system ~~being~~ are organized into stacks comprising a given maximum number of levels, each level constituting one of said storage locations[[,]]; and
- said typed data are stored in at least a first elementary stack called a data area and a second elementary stack called a local variable area[[,]]; and
- ~~in that~~ said second series of storage locations is also organized into elementary stacks that correspond one to-one with said first and second elementary stacks.

19. (currently amended) System according claim 18, ~~characterized in that~~ wherein said type information elements stored in said second series or storage locations are associated with additional information elements that determine the size of said storage locations in said stacks storing said typed data.

[10]]20. (currently amended) System according to claim 17, ~~characterized in that~~ wherein said embedded microchip system is a smart card.